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Deposited in DRO:

18 April 2019

Version of attached file:

Accepted Version

Peer-review status of attached file:

Peer-reviewed

Citation for published item:

Reimann, A. and Sadlerb, I. and Sambellc, K. (2019) 'What's in a word? practices associated with 'feedforward' in higher education.', *Assessment evaluation in higher education.*, 44 (8). pp. 1279-1290.

Further information on publisher's website:

<https://doi.org/10.1080/02602938.2019.1600655>

Publisher's copyright statement:

This is an Accepted Manuscript of an article published by Taylor Francis in *Assessment evaluation in higher education* on 13 April 2019, available online: <http://www.tandfonline.com/10.1080/02602938.2019.1600655>

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What's in a word? Practices associated with 'feedforward' in higher education

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What's in a word? Practices associated with 'feedforward' in higher education

The term 'feedforward' is increasingly employed in higher education, and this paper focuses on the way in which it fits into contemporary debates about feedback and its impact on practitioners. Semi-structured interviews were used to investigate the practices academics associate with feedforward and the ways in which their intentions and understandings varied. The term resulted in practices being framed as a process and prompted academics to consider the points in the future when students were expected to deploy information and improve. Three future horizons were identified: the 'within-module' future horizon dominated, while the challenges of 'beyond-module' and 'beyond-programme' horizons became apparent. Written comments, guidance, formative assessment and design practices were associated with feedforward, comprising both transmission and student-focused approaches. It is concluded that the modular system restricts longer-term future horizons and sustainable practices, and more must be done to address the divide between theoretical and practitioners' perspectives.

Keywords: feedback, assessment, feedforward, modularisation

Introduction

The past decade has been characterised by an upsurge of interest in assessment and, in particular, feedback in higher education. Triggered by relatively low levels of student satisfaction, institutions have developed a plethora of policies and initiatives to improve the student experience of feedback. In line with these developments, individual academics and teams have made strenuous efforts to enhance feedback practices. This is reflected in publications reporting small-scale practice-based action research on a wide range of interventions. At the same time, it has been suggested that attempts to enhance feedback are under-theorised and lack conceptual sophistication (e.g. Boud and Molloy 2013), and this may be one of the reasons for the continued lack of impact of these initiatives. Contemporary theorisations view sustainable feedback processes (Carless et al. 2011) from a socio-constructivist perspective which focuses on the development of

students as agentic, self-regulated learners. Dialogic approaches which promote student sense-making, uptake and action (Carless and Boud 2018) are emphasised. However, approaches to feedback focused on monologue and transmission appear to dominate practice and are challenging to disturb. According to Ashwin et al. (2015) everyday higher education discourse implies that feedback is one-way information provision, rather than a process judged *primarily* in terms of its effects, and unduly focuses on the inputs made to achieve these effects. This is reminiscent of teacher-focused conceptions of teaching which regard teaching as information-transmission (e.g. Trigwell and Prosser 1996). It also indicates a potential disconnect between the conceptual debates in the feedback literature and prevailing practice on the ground.

Within these debates and practice developments, the term ‘feedforward’ has gained curious prominence. It is increasingly employed in the practice domain and there is growing interest amongst academics and academic developers. This became evident in the interest which our own work on feedforward generated at conferences. The use of the term feedforward in academic publications has also increased substantially. For reasons of consistency the spelling ‘feedforward’ is used in this article; however, ‘feed-forward’, ‘feed forward’ and ‘to feed forward’ can equally be found in publications. For instance, in this journal eight articles with feedforward in the title were published between 2012 and 2017 (e.g. Wimshurst and Manning 2013; Murphy and Barry 2015; Hughes, Smith, and Creese 2015), compared with one prior to 2012 (Duncan 2007). Despite this interest, assessment researchers such as Tai et al. (2018) have pointed to the fact that sophisticated conceptualisations of *feedback* already subsume ideas associated with the term *feedforward*. They suggest that the notion of feedforward may even dilute attempts to engender a learning-oriented (re-)conceptualisation of feedback.

The emergence of the word feedforward, its use by practitioners and researchers, its fuzziness and the responses it has provoked in the assessment community have prompted the empirical study reported in this article.

Literature review

Several authors have emphasised the need to reconceptualise feedback in higher education, and contemporary conceptualisations have increasingly focused on the necessity to enhance students' ability to self-monitor their work. These conceptual discussions have also alluded to feedforward, albeit from slightly different angles. Within Hattie and Timperley's (2007) seminal review, feedforward is an integral component of feedback enabling teachers to respond to the question 'what to next?', as one of three major questions that make feedback effective. In an article critiquing prevailing conceptions of feedback, Boud and Molloy (2013) also argue that feedback is more than information provision or, in Sadler's (1989) words, 'dangling data'. In order to qualify as feedback, such information must be acted on and mechanisms must be in place that allow detecting whether it has led to improvement, as in the engineering model of feedback. 'When feedback is understood in this way, feed forward is not a separate notion but a necessary characteristic of feedback' (Boud and Molloy 2013, 702). However, they argue that this is not enough. In an alternative model with student agency at its centre, students are supported to develop their ability to seek feedback, make judgements and act on them. This requires a learning milieu which generates interactions with different actors and a focus on curriculum design to systematically develop opportunities for students to evaluate performance. Here, feedforward is specifically associated with 'nested tasks', timed and designed to elicit input, judgements of students' own performance and that of others, and improved performance on subsequent tasks.

Sadler (2010) critiques conventional assessment and feedback in a similar vein; however, he employs the word feedforward differently. For Sadler, it refers to the first step in a transmission-focused, conventional assessment sequence in which task specifications, such as criteria, are communicated to guide students' future actions and performance. He also uses the term to refer to prospective elements in conventional feedback when broader principles can be applied to future work. Sadler contrasts these teacher-focused approaches with strategies to develop students' evaluative judgement. Hounsell et al. (2008) propose a process-model based on student data, in which feedforward is conceived as the final stage in a wider guidance and feedback loop. The loop is closed (Carless, 2018) when learning gained from one task leads to improvements in a subsequent task. Such process-models draw attention to the point at which the information generated within the feedback process is deployed.

A common theme in (re-)conceptualisations is the shift away from feedback as behaviourist, one-way 'telling' to a process-oriented curriculum-design perspective within which the development of students' evaluative judgements is key (Tai et al. 2018). This has synergies with Carless et al. (2011) and Nicol (2010) who equally emphasise student agency, the role of self-regulation and the importance of dialogue for the feedback process, whilst not specifically employing the term feedforward. Based on Boud's (2000) idea of sustainable assessment, Carless et al. (2011) expand the notion of sustainable feedback, originally proposed by Hounsell (2007), to refer to dialogic interactions which support students with both current and future tasks through fostering their abilities to self-regulate. Sustainability is described as the 'ability of students to improve the quality of their work independently of the tutor' (Carless et al. 2011, 404) and linked to practices such as two-stage assignments. Nicol (2010) makes mass higher education and modularisation responsible for impoverished higher education learning

environments from which the dialogue necessary to co-construct feedback between lecturers and students has been squeezed out.

The term feedforward also features in empirical investigations of practice. These studies vary in their engagement with current theorisations, and extremely diverse practices or interventions are labelled as feedforward: tutors' written comments on student work (Walker 2013; Hughes, Smith, and Creese 2015); methods for enhancing interaction with such comments (Duncan 2007; Vardi 2013); activities engaging students with exemplars and assessment criteria/rubrics (Wimshurst and Manning 2013; Walker and Hobson 2014); and self-assessment tasks using video recordings or checklists (Wakefield et al. 2014; Murphy and Barry 2015). Some interventions consist of intricately-designed staged activities (e.g. Duncan 2007; Wimshurst and Manning 2013; Vardi 2013). There tends to be an expectation that interventions result in concrete improvements (e.g. measured by grades), with a focus on immediate subsequent tasks rather than longer term, sustainable impact.

As has been seen, the term feedforward, although contested, is increasingly employed in the assessment literature. In the practice domain, it appears to involve an array of pedagogic interventions expected to result in immediate improvements. However, while practitioners seem to be attracted by the term, little is known about their perspectives. Some theoretical discussions suggest that feedforward is already an essential component of the feedback process or that the term might even detract from current attempts to (re-)conceptualise feedback. This study revisits this discussion by asking what is in the word feedforward, but this time from an empirical perspective.

Method

The study sought to illuminate the types of practices academics associate with feedforward, how they understand the term and the ways in which their practices,

intentions and understandings vary. The sample consisted of 15 academics, with five academics coming from each of three contrasting UK institutions. These comprised one large post-1992 (i.e. former polytechnic), one small post-1992 and one large research intensive pre-1992 university. To consider the potential influence of disciplines, at least two participants from each of Becher and Trowler's (2001) categories hard-pure, soft-pure, hard-applied and soft-applied disciplines were included; in addition, business was used as a common subject area across all three institutions, from which one early career and one experienced academic was recruited in each institution. A broad range of practitioners in terms of teaching experience, background and role were targeted. They were identified and approached following recommendations from local informants in the selected disciplines.

Participants were invited to take part in a 30-minute semi-structured recorded interview to talk about feedforward. At the outset of the interview it was explained that no accepted definition existed, and the interviews offered participants opportunities to explore their own understanding. Starting from a practice perspective, they were asked whether there was anything in their practice they would label as 'feedforward'. This led to a discussion of examples, explanation of their purpose/intention and whether they could be considered typical for their discipline. The final question focused on how participants understood the term now and if and in what way it might differ from feedback.

The interviews were transcribed verbatim and analysed by three researchers, using NVivo software and the analytic approaches described by Miles, Huberman, and Saldaña (2014) and Braun and Clarke (2006). We started with an inductive, data-driven stage to allow for analysis through a broad field of vision, with a focus on each case (i.e. interview) on its own merit. Initially all transcripts were coded independently by all

three researchers, immersing ourselves in the data by reading, re-reading and note-taking. This led to the joint identification of broad holistic codes which were then used to analyse eight transcripts: two transcripts jointly considered by all three researchers and two different transcripts separately by each researcher. First-cycle coding and jottings were compared within-case and cross-case and resulted in codes with definitions agreed for second-cycle coding. Each researcher then coded five transcripts, and the coded data and jottings were reviewed to achieve a refined and shared understanding of the codes and emerging themes. These were then considered deductively in relation to conceptualisations of feedback and feedforward in the literature. Visual representations of the themes coupled with corresponding narratives and vignettes were iteratively refined throughout on-going analysis. These allowed for the development of a broader 'story' and provided the basis for the findings reported below.

Findings

Overview

The term feedforward appeared to encourage a process orientation and a corresponding focus on the future, with research participants emphasising its purpose as improving student performance. More specifically, feedforward seemed to encourage a focus on the point in time at which the information provided was intended to be used by students, which we labelled as their 'future horizon'. Reported practices associated with feedforward involved several future horizons which were strongly shaped by the modular system: most frequently situated within the current module, much less frequently across modules and beyond programmes of study. Participants also reported a range of practices associated with feedforward. These were categorised as written

comments, guidance, formative assessment, and design. Reported practices included both teacher/transmission-focused approaches and learner-focused/dialogic approaches which involved students more actively. The sections below discuss these findings in more detail.

Feedforward practices framed as a process for student improvement

One of the striking features of the responses to the term feedforward was the way in which it led participants to frame their practices as students employing information about their performance in future activity. This feature of feedforward is apparent in the following extract:

So [feedforward], it's perhaps taking feedback as a concept and being a bit more explicit about how that feedback can then be used by the students to improve their performance in the future. (Business, pre-1992).

The term feedforward tended to evoke description of a process taking place over a period of time. Formative assessment was often a key feature of this process, as the same interviewee continued to explain:

So on the formative, students have had like a first shot of looking at a question very similar, or writing an essay on a similar topic. Then in assessing or giving them feedback on the formative, we would have told them areas to address so that when you go into doing the summative assessment they can do better. So I guess that was an aspect of feedforward instead of feedback for the students. (Business, pre-1992)

However, while the interviewees tended to report their hopes that the information would be deployed, descriptions of students actually using such information

were tentative or non-existent, and practices that explicitly followed up on its use were rare. In the following two extracts phrases such as ‘you could do’ or ‘might point out’ are evident:

It [feedforward] feels more formative feedback in the sense that it’s not definite in terms of you’ve done this well, you haven’t done that well. It’s couched in a way that says here are some things that you could do to improve for the future. That’s, to me, the distinct flavour of it. (Business, large post-1992)

The second extract also implicitly problematises the concept of ‘closing the loop’:

Some tutors think they might be feeding forward but maybe aren’t, because it’s all well and good to say; ‘Your argument about this text doesn’t work, (...) but ... we don’t allow students to write on the same [literary] text twice. So that feedback actually might point out why they didn’t do very well, but has absolutely no application beyond that assessment. (English, small post-1992)

Such findings point towards the practical difficulties practitioners were wrestling with.

Interviewees’ process-oriented views were frequently contrasted with what were described as backwards-looking practices focused on grading and justification of marks. These were labelled as *feedback*. In contrast, the word *feedforward* seemed to focus attention on the desire to improve future student performance. The following extract clearly illustrates this contrast:

Feedback I suppose I would see as; ‘Thank you very much for the piece of work, I’ve marked it and it’s worth this and here’s the justification for that’. Whereas feedforward would be what was good about the piece of work, therefore what you should do again in

future and what needs to be improved, and ideally how you would go about improving it. (Anthropology, pre-1992)

The next quote contrasts ‘dangling data’ with dialogue which helps teachers check whether the information provided has been understood and acted upon:

I think feedback is more the old-fashioned version of what we used to do, so I am telling you this is how you’ve done, you need to have a think about that and sort it out next time. And I think feedforward is more of a collaborative discussion type arrangement, and then you do look at it again. You don’t assume I’ve given feedback, that’s dealt with I don’t need to think about that again. You actually revisit it with the student and look at it again, and it’s a continual thing, so you don’t just feedforward and then that was it, I see it as a thing that carries on, whether it’s a theme or a type of assessment or whatever. (Biomedical Science, small post-1992)

There are interesting parallels with conceptualisation in the literature. The first excerpt is reminiscent of what Nash et al. (2018) contrast as future-oriented (directive) versus past-oriented (evaluative) feedback. The second resonates with the engineering model’s (Boud and Molloy 2013) focus on detecting action.

The future horizons of feedforward

While process and future orientations were common characteristics of practices interviewees associated with feedforward, the points at which they intended students to deploy information, i.e. their future horizons, varied considerably. These future horizons were determined by the structures of the modular system and usually referenced in relation to summative assessment. Frequently the future horizon was located within a module, and much more rarely beyond a module, i.e. in a subsequent

module or year of study, or beyond the programme of study. The future horizons evident in the data are depicted diagrammatically in figure 1.

[Figure 1 near here]

Within module

The within-module future horizon was by far the most common way in which participants' practices aimed to assist students in improving their performance. These practices focused on generating information to be deployed in the summative assessment of the current module. The following extract illustrates this by drawing students' attention to criteria and planning well in advance:

I (...) show them the marking matrix before they even start their project. Parts of our marking come down to things like, effort and planning is a few percent of the mark and initiative and ideas is a few percent of the mark. You can't fix them later (...). So that's our criteria, you go and think about how we're going to respond to your project and what you are doing and therefore how you are going to get good marks. Again, is that feedforward? I suppose so, because we are giving them information and saying go and do that. Because there would be no point in waiting for the feedback. (Engineering, pre-1992)

Others offered developmental comments on draft work:

We give them quite a lot of opportunity (...) to submit sections of their work to get some formative feedback to see if they're on the right lines. [...]. So I'd annotate it electronically and point out areas where they might need to expand the argument or give some examples of their practice, or say how this applies to them or look at an opposing view. In that kind of formative feedback I think there's probably a lot of opportunities for what I would see as being feedforward. (Business, large post-1992)

Although these practices varied considerably, the consistent element is the idea of information prior to the module's summative assessment helping students improve their performance in the assessment. The information intends to help students see 'how (...) to get good marks' or 'if they're on the right lines'.

Across modules

Less frequently, practices framed as feedforward were intended to generate information about students' current performance that could potentially be utilised across modules, i.e. in a subsequent module or year of study. The following extract provides an example:

I'm taking it [feedforward] as (...) feedback that they then take forward to another module or another learning situation. (...) Hopefully they'll take that information to their dissertation.' (Business, small post-1992)

Descriptions of relevant practices in terms of when and how such information would specifically be of use were far vaguer than feedforward within the context of a module. For example, the extract above indicates that it 'hopefully' helps with the dissertation. Participants also reflected on the barriers they had experienced when thinking about feedforward in this way. In the following excerpt the modular system is found wanting, prompting teacher exhortations aimed at helping students to perceive future links:

...what I always try and do is say, "Don't just stop here. So the things I've picked up on here are going to be relevant for your project write up; they're going to be relevant for your semester two assessment in [specific module]. (...) There's strengths and

weaknesses in a modular system, but the weakness is: “I’ve done that assessment, that module, move on” and make the same mistakes again. (Biology, large post-1992)

The next quote demonstrates awareness of the difficulties involved in utilising written feedback comments across modules:

The opportunity to really make that clear, about how they can be using their feedback, it’s all well and good to think that your feedback is doing that, but I think giving students the chance to actually work with their feedback as a document can be quite difficult to achieve. (English, small post-1992)

Appropriate content and focus of information were specific challenges arising from practices intended to feed forward beyond the future horizon of the module. Often participants suggested it should be generic, skills-focused information, in the hope that this had the potential for transfer to other assessments. Interviewees contrasted such generic information with the specificity of the knowledge, understanding and skills required to address a particular assessed task:

It depends what you’re actually giving feedback or feedforward on. (...) If you’re giving general feedback about how they could have answered and structured this question in a better way, that is obviously going to help them and other assessments that they do, but the specific subject content is something that I don’t really think is going to benefit them. (Law, large post-1992)

Beyond programme

The term feedforward encouraged some interviewees to consider how the information provided would be used beyond the programme and after university study. Practices associated with the future horizon beyond the programme particularly emerged from the

professionally orientated subjects. Here participants focused on improving students' understanding of authentic professional practice, akin to engaging students with the ways of thinking and practising in the discipline (WTP) (McCune and Hounsell 2005) rather than generic skills or subject specific content. The following extract refers to students' future practice as health professionals:

The feedforward (...) would then focus on the fact that they're going to be a registrant, (...) the patient's advocate. And as a registered [health practitioner], you have certain obligations towards, not just the patient but also your colleagues and if you see examples of bad practice, you must kind of act upon them. (Health, large post-1992)

This future horizon was relatively scarce. Where evident, it focused on the development of discipline-specific outcomes. For instance, activities aimed at improving group work skills in Business were described as not simply to 'make assessment easier, as might be the case in some disciplines', but to 'help the students to be able to work in an environment that is similar to what they will encounter in the future' (Business, pre-1992).

Variation in practices framed as feedforward

Implicit in the future horizons discussed above, an array of practices were reported, with substantial variation between them. These will now be discussed.

Written comments

The provision of written comments on summatively assessed work was frequently associated with the term feedforward. Such comments contained advice for students on what to improve in future summatively assessed work, e.g. as part of an assignment cover sheet. However, doubts were often expressed whether this actually resulted in

improvements:

What we've devised within the department is a sheet which (...) suggests that the first marker would identify priority areas for each student to move on, and those are individual for each students (...) The feedback we've had from students about that is that it was useful, but (..) they don't seem to be actually following that through, so I'm not convinced that we've closed the loop. (Education, small post-1992)

Being aware of the weaknesses of simply transmitting information, several interviewees mentioned the importance of students actively discussing tutor comments:

A lot of us do assessment workshops where students bring their actual feedback in and then use that and think about how they are going to apply that. Tutorials are a really good space to do some of that. (English, small post-1992)

However, although such practices contained opportunities for dialogue and student agency, the focus tended to be on information transmission and improving grades.

Guidance

Another reported practice associated with feedforward was that of guidance. This was either at the start of or during a module and consisted of information that students would use to undertake the summative assessment. Often such guidance was didactic information from the teacher to the students about the requirements of the task. In the extract below it consisted of information on text structure and explanation of the assessment criteria:

We do that with lab reports as well. We give them a sort of outline of how we would

expect it to be structured, certain types of things we would expect it to happen in there, how we would expect sections to be labelled. (Engineering, pre-1992)

Such guidance is reminiscent of the conventional communication of task specifications which Sadler (2010) labels as feedforward. However, there were also less transmission-focused examples of guidance practices which for instance involved students in actively using criteria:

... a session in which we review examples of previous bits of work, (...) good bits, medium bits and then bits that are maybe not so good. (...) I hand them out with the marking scheme that the lecturers use, the marking criteria, and I get them [the students] to mark in class and then we review what the work actually kind of was from an academic perspective. (Biology, large post-1992)

Formative assessment

Other practices associated with feedforward engaged students in formal or informal activities which generated information intended to feed forward into summative activities. In contrast to practices categorised as guidance, formative assessment involved opportunities for students to actively ‘have a go’ and produce their own work. There were a broad range of formative task designs. In some instances, the approach consisted of the teacher commenting on and transmitting information about draft work or mock activity which directly mirrored the summative task, as illustrated by this excerpt:

I just set them last year’s [summative] task as a formative piece. The principle is exactly the same (...) it’s a very similar task (...), but it’s a different case study. (...) It focuses their mind because they know it’s coming up, they know that they’ve actually got to sit down and write something. (Business, small post-1992)

Other formative practices associated with feedforward, however, went beyond direct rehearsal of the summative task and tutor ‘telling’ by incorporating dialogue and enabling students to develop self-regulation (Carless et al. 2011). Some interviewees described practices when students actively generated their own feedforward e.g. as part of a peer or self-review activity. Such practices tended to focus on the development of skills and understanding in the subject area through evaluative judgements and classroom assessment, generating rich dialogue between students and teachers and between peers. In Physics (pre-1992) for instance, lectures were used to frame formative homework questions which students self-marked by comparing their own to model answers. Rather than correcting their answers, the lecturer considered confidence ratings and questions posted by the students. In a finance module, feedforward was associated with a simulation which provided students with authentic experiences of investing, making gains and losses, learning from mistakes and, as a consequence, improving their investment strategies:

[Students] provide their own feedback. (...) I don’t provide feedback; I potentially provide suggestions, but I make them go away and actually investigate what went wrong (...). The idea of the module is that they self-correct that. (...) My job is to kind of prod them and say ‘well, why do you think that is?’ (Business, large pre-1992)

Such practices resonate with Carless et al.’s (2011, 297) definition of sustainable feedback in which ‘dialogic processes and activities (...) support and inform the student on the current task, whilst also developing the ability to self-regulate on future tasks’.

Design

Practices categorised as design conceived feedforward as a longitudinal process rather than a single episode. Design practices often consisted of an intricate and intentionally structured sequence of guidance, formative tasks and review of summative comments in order to support improvement, thus combining several of the practices associated with feedforward discussed above. Designs themselves varied, but in general there was a focus on student access to multiple sources of information they could use to support future work at several points in time, thus having synergies with what Carless et al. (2011) identify as multi-stage assignments. One such example was a module in biology designed around a series of steps including a session with guidance for the assignment, an exemplar-based review activity, submission of a draft assignment plan followed by tutor comments, and finally a marks analysis with pointers towards implications for future modules, thus evoking a future horizon beyond the module.

Although rare, practices in the design category were sometimes embedded in notions of doing the discipline, as this example of a second year anthropology module demonstrates:

My hope with the assessment, well the whole module really, was that they would get to the zoo to look at primate behaviour. First of all so that they would understand (...) why an anthropologist (...) would look at primates anyway, in the wild or at the zoo. And then it was about how you design a study, conduct it and write it up. So students quite often (...) report most of their work as essays. And this was more about what we do as academics, which is writing reports, manuscripts, so it was all designed around that. (Anthropology, pre-1992)

This example offered a glimpse of practice in which authentic assessment scaffolded the development of WTP, i.e. ‘what we do as academics’, with the future horizon clearly located beyond the programme. An elaborate process of peer and tutor feedback for project proposals was ‘designed to prepare them for the final project’, with a view to ‘how they could improve’. It culminated in a visit to the zoo which provided a rich dialogic learning environment as students ‘could ask me questions, and if they didn’t have questions I sort of hung around and asked them questions’.

Discussion and conclusion

The study has shown that feedforward is an evocative yet also deeply problematic term. On the one hand, it begins to make everyday practitioners rethink feedback as a process with a temporal dimension and a forward-looking future orientation. It also appears to foreground the issue of student engagement with feedback, by focusing attention on the potential for uptake of information and the necessity of action. At first glance, this is a welcome development as it seems to address contemporary concerns about the shortcomings of current feedback practices. On the other hand, though, our data also reveals that there are a wide range of reported routine practices, many of which fall significantly short of the levels of learner agency and involvement which represent contemporary reconceptualisations of feedback. Recent theorisations of sustainable feedback processes are predicated on student self-regulation (Nicol 2010; Carless et al. 2011) and place learner empowerment, agency and the development of evaluative judgment at their heart (Boud and Molloy 2013; Tai et al. 2018). However, many of the practices that surfaced in our study continued to represent what Carless (2015) refers to as traditional models of feedback. In many instances, while the practices we uncovered indeed represented a step forward for individual practitioners, prompting them to pay attention to the possibility of future value of feedback to learners, many of the practices

continued to be one-way transmission of information from teacher to student and framed students as passive recipients. In particular, even though the notion of feedforward brought future horizons into view, there was hardly any discussion of if, or how, teachers knew whether such information was deployed and whether it had any effect, nor were there many activities in place to support or monitor students in their use of this information and subsequent improvement.

Our analysis also highlighted the existence of a range of future horizons and a range of practices. While there is no *direct* relationship, these two aspects are linked since, we would argue, certain future horizons seem more likely to stimulate certain types of practices. A longer-term future horizon in particular, necessitates practices which go beyond, for instance, the provision of guidance in order to fulfil assessment requirements or a rehearsal for an assessed task. Future horizons beyond modules and programmes require ‘nested tasks’ (Boud and Molloy 2013) and authentic assessment practices closely aligned with WTP in the respective discipline (Carless 2015; McCune and Hounsell 2005), instead of purely assisting students to jump through the next assessment hoop with a focus on immediate performance and, often, the reward of marks. Sustainable feedback with a focus on the longer term requires a curriculum-design approach to assessment as proposed by Boud and Molloy (2013) and, arguably, embedded in an holistic programme-level assessment for learning environment (Sambell, McDowell, and Montgomery 2013) characterised by productive and learning-oriented assessment tasks (Carless 2015). What was notable in our study, however, was that while some practices associated with feedforward were categorised as design-oriented, explicit alignment with WTP only surfaced occasionally.

The origins of this problem seem to lie in the modular structures which confine practitioners’ thinking. As the discussion of future horizons has demonstrated, practices

associated with feedforward were predominantly located within modules. The modular structure thus focuses practitioners' attention on immediate assessment requirements, rather than broader ambitions for student learning of the programme and the discipline. This resonates with Hughes, Smith, and Creese (2015) study of tutors' comments on draft and final graded assignments which found that such comments tended to focus on a particular piece of work, while broader disciplinary expectations and progress made were largely absent. They draw attention to the fact that assessors may not have sufficient insight into the programme as a whole, and that what they call 'higher order disciplinary skills' cannot be easily decontextualised from a concrete piece of work. This has also become evident in the current study when practitioners grappled with what feedforward should focus on and frequently referred to it as generic 'skills'. Other authors have equally highlighted the deleterious impact of modularisation on assessment regimes, especially the way in which it has led to a proliferation of summatively assessed work, while decreasing the potential for learning and dialogue (Nicol 2010; Harland et al. 2015; Jessop and Tomas 2016). Tai et al. (2018, 477) have proposed that the development of students' capacity for evaluative judgements 'within and beyond the course' should be a key goal of higher education. Putting this into practice requires future-oriented pedagogic dialogue and a joined-up approach; however, this is clearly baulked by prevailing within-module future horizons.

Another issue emerging from our study is the considerable disconnect between theoretical and practitioners' perspectives. The study took practitioners' practices and intentions as its starting point. Their responses to feedforward demonstrate that the term has some potential in making individuals think about feedback as a loop that needs closing, which could be a useful tool for academic development. However, it has also illustrated the difficulties faced by practitioners when trying to employ future-oriented

practices. While these are traceable to modularisation, they also seem to be due to understandings which do not include students as active agents in the assessment and feedback process and focus on students enacting teacher directions (Nash et al. 2018). However, the complexities of supporting practitioners to make the transition from teacher-controlled to learner-oriented models of feedback and to respond on the ground to the ‘double duty’ of assessment (Boud 2000) have not yet been fully acknowledged by theorists. While the practice-based empirical literature has focused considerable attention on developing higher education students’ assessment literacy (Price et al. 2012; Smith et al. 2013), parallel developments for staff have been less prominent, and the burgeoning theoretical literature has a tendency to remain somewhat detached from practitioners’ concerns and everyday experiences. The dichotomy between the critique of the term feedforward in conceptual publications (e.g. Tai et al. 2018) and the recent upsurge in its use amongst practitioners and in institutional discourses might be symptomatic of the extent of the current divide between theory and everyday practices.

One productive approach to bridging this divide undoubtedly lies in programme-focused assessment and feedback designs (e.g. Carless and Boud 2018; Jessop and Tomas 2016). Academic development may also have an important role to play. For instance, we have successfully used visual representations of the contrasting views which emerged from our empirical study (e.g. Figure 1) to stimulate reflective conversations with practitioners about feedback/feedforward and associated practices. However, to illuminate ‘what’s in a word?’ more fully, a comprehensive picture of the ways in which feedforward has been considered in the research and practice-focused literature is required. We are therefore building on our empirical work by conducting a systematic review, which will reveal how feedforward has been framed in educational literature more broadly.

References

- Ashwin, P., D. Boud, K. Coate, F. Hallett, E. Keane, K. Krause, B. Leibowitz, et al. 2015. *Reflective Teaching in Higher Education*. London: Bloomsbury Academic.
- Becher, T. and P.R. Trowler. 2001. *Academic Tribes and Territory: Intellectual Enquiry and the Culture of Disciplines*. 2nd ed. Buckingham: Open University Press/SRHE.
- Boud, D. 2000. "Sustainable Assessment: Rethinking Assessment for the Learning Society." *Studies in Continuing Education* 22 (2): 151-167.
- Boud, D., and E. Molloy. 2013. "Rethinking Models of Feedback for Learning: the Challenge of Design." *Assessment & Evaluation in Higher Education* 38 (6): 698-712.
- Braun, V., and V. Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77-101.
- Carless, D. 2015. "Exploring Learning-oriented Assessment Processes." *Higher Education* 69: 963-976.
- Carless, D. 2018. "Feedback loops and the longer-term: towards feedback spirals." *Assessment & Evaluation in Higher Education*. Advance online publication. <https://www.tandfonline.com/doi/full/10.1080/02602938.2018.1531108>
- Carless, D., and D. Boud. 2018. "The development of student feedback literacy: enabling uptake of feedback." *Assessment & Evaluation in Higher Education* 43 (8): 1315–1325.
- Carless, D., D. Salter, M. Yang, and J. Lam. 2011. "Developing Sustainable Feedback Practices." *Studies in Higher Education* 36 (4): 395-407.
- Duncan, N. 2007. "'Feed-forward': Improving Students' Use of Tutors' Comments." *Assessment & Evaluation in Higher Education* 32 (3): 271-283.
- Harland, T., A. McLean, R. Wass, E. Miller, and K. Nui Sim. 2015. "An Assessment Arms Race and Its Fallout: High-stakes Grading and the Case for Slow Scholarship." *Assessment & Evaluation in Higher Education* 40 (4): 528-541.
- Hattie, J., and H. Timperley. 2007. "The Power of Feedback." *Review of Educational Research* 77 (1): 81-112.

- Hounsell, D. 2007. "Towards More Sustainable Feedback to Students." In *Rethinking Assessment in Higher Education*, edited by D. Boud and N. Falchikov, 101-113. London: Routledge.
- Hounsell, D., V. McCune, J. Hounsell, and J. Litjens. 2008. "The Quality of Guidance and Feedback." *Higher Education Research and Development* 27 (1): 55-67.
- Hughes, G., H. Smith, and B. Creese. 2015. "Not Seeing the Wood for the Trees: Developing a Feedback Analysis Tool to Explore Feed Forward in Modularised Programmes." *Assessment & Evaluation in Higher Education* 40 (8): 1079-1094.
- Jessop, T., and C. Tomas. 2016. "The Implications of Programme Assessment Patterns for Student Learning." *Assessment & Evaluation in Higher Education* 42 (6): 990-999.
- McCune, V., and D. Hounsell. 2005. "The Development of Students' Ways of Thinking and Practising in Three Final-year Biology Courses." *Higher Education* 49: 255-289.
- Miles, M.B., A.M. Huberman, and J. Saldaña (2014). *Qualitative Data Analysis: A Methods Sourcebook*. 3rd ed. Thousand Oaks, London, New Delhi, Singapore: Sage.
- Murphy, K., and S. Barry. 2016. "Feed-forward: Students Gaining More from Assessment via Deeper Engagement in Video-recorded Presentations." *Assessment & Evaluation in Higher Education* 41 (2): 213-227.
- Nash, R.A., N. Winstone, S.E.A. Gregory, and E. Papps. 2018. "A Memory Advantage over Past-oriented over Future-oriented Performance Feedback." *Journal of Experimental Psychology: Learning, Memory, and Cognition*. Advance online publication. <http://dx.doi.org/10.1037/xlm0000549>
- Nicol, D. 2010. "From Monologue to Dialogue: Improving Written Feedback Processes in Mass Higher Education." *Assessment & Evaluation in Higher Education* 33 (5): 501-517.
- Price, M., C. Rust, B. O'Donovan, K. Handley, and R. Bryant. 2012. *Assessment Literacy. The Foundation for Improving Student Learning*. The Oxford Centre for Staff and Learning Development: Oxford.
- Sadler, R. D. 1989. "Formative Assessment and the Design of Instructional Systems." *Instructional Science* 18: 119-144.

- Sadler, R.D. 2010. "Beyond Feedback: Developing Student Capability in Complex Appraisal." *Assessment & Evaluation in Higher Education* 35 (5): 535-550.
- Sambell, K., L. McDowell, and C. Montgomery. 2013. *Assessment for Learning in Higher Education*. Abingdon and New York: Routledge.
- Smith, C.D., K. Worsfold, L. Davies, R. Fisher, and R. McPhail 2013. "Assessment Literacy and Student Learning: the Case for Explicitly Developing Students 'Assessment Literacy'." *Assessment & Evaluation in Higher Education*, 38 (1): 44-60.
- Tai, J., R. Ajjawi, D. Boud, P. Dawson, and E. Panadero. 2018. "Developing Evaluative Judgement: Enabling Students to Make Decisions about the Quality of Work." *Higher Education*, 76 (3): 467-481
- Trigwell, K. and M. Prosser. 1996. "Congruence between Intention and Strategy in University Science Teachers' Approaches to Teaching." *Higher Education* 32: 77-87.
- Vardi, I. 2013. "Effectively Feeding Forward from One Written Assessment Task to the Next." *Assessment & Evaluation in Higher Education* 38 (5): 599-610.
- Wakefield, C., J. Adie, E. Pitt, and T. Owens. 2014. "Feeding Forward from Summative Assessment: the Essay Feedback Checklist as a Learning Tool." *Assessment and Evaluation in Higher Education* 39 (2): 253-262.
- Walker, M. 2013. Feedback and Feedforward: Student Responses and Their Implications. In: Merry, S., Price, M., Carless, D., and Taras, M. (eds., 2013) *Reconceptualising Feedback in Higher Education. Developing Dialogue with Students*. Oxon and New York: Routledge, 103-112.
- Walker, S., and J. Hobson. 2014. "Intervention in Teaching First-year law: Feeding Forward to Improve Learning Outcomes." *Assessment & Evaluation in Higher Education* 39 (3): 326-338.
- Wimshurst, K., and M. Manning. 2013. "Feed-forward Assessment, Exemplars and Peer Marking: Evidence of Efficacy." *Assessment & Evaluation in Higher Education* 38 (4): 451-465.